

$$\sqrt{x-2} \rightarrow (a-2)x^2 + ax + b \quad (1)$$

$$a-2=0 \rightarrow a=2$$

$$x=2 \rightarrow 2(2)^2 + b = 0$$

$$b = -8$$

$$x^2 + mx + 1 + 1 - m^2$$

$$(x+1)^2 + 1 - m^2 > 0$$

$$+1 - (-1) = +2$$

$$1 - m^2 > 0 \rightarrow 1 > m^2 \rightarrow -1 < m < 1$$

الف) $x^3 + 3x^2 > 0 \rightarrow x^2(x+3) > 0$

$x+3 > 0 \rightarrow x > -3$

$$x = \pm 1 \rightarrow [-3, +\infty)$$

ب) $(x^2-1)(x^3-3x^2) > 0$

$$x^2(x-1)(x^2-3x) = 0$$

$$x=0, x=1, x=3$$

Sign chart:

+	-	-	+	+
0	1	3		

$x=1$

$$D \rightarrow (-\infty, -1] \cup [3, +\infty)$$

$$x-x^2 > 0 \rightarrow x > x^2 \rightarrow -1 < x < 1$$

$$[x] + [-x] + 1 \neq 0 \rightarrow [x] + [-x] \neq -1 \rightarrow [-2, 2]$$

$$[-2, -1] \cup [0, 1]$$

الف) $|x-2| - 3 \geq 0 \rightarrow |x-2| \geq 3$ (5)

$$\begin{aligned} \hookrightarrow x-2 \leq -3 &\rightarrow x \leq -1 \\ x-2 \geq 3 &\rightarrow x \geq 5 \end{aligned}$$

$$(-\infty, -1] \cup [5, +\infty)$$

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ب) $4 - |x-1| \geq 0 \rightarrow 4 \geq |x-1|$

$$\hookrightarrow -4 \leq x-1 \leq 4$$

$$x \in [-2, 5] \leftarrow \{x \mid x \geq -2\} \cap \{x \mid x \leq 5\}$$

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الف) $|1-x| \geq 0$ (6)

(1) $x \geq 0 \rightarrow 1-x^2 \geq 0 \rightarrow 1 \geq x^2 \rightarrow 0 \leq x \leq 1$

(2) $x < 0 \rightarrow 1+x^2 \geq 0 \rightarrow \text{مطلوب} \Rightarrow x < 0 \} \cup$

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$$(-\infty, 0]$$

ب) $3 - |x-5| \geq 0 \rightarrow 3 \geq |x-5| \rightarrow -2 \leq x-5 \leq 3$

$$x \in [2, 8] \leftarrow \{x \mid x \geq 2\} \cap \{x \mid x \leq 8\}$$

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الف) $\cos x \neq 0$ (7)

$$\hookrightarrow D = \mathbb{R} - \{k\pi \pm \pi/2\}$$

ب) $\forall x \cos x \neq 1 \rightarrow \cos x \neq 1 \rightarrow x \neq 2k\pi$

MAHAN

$$D = \mathbb{R} - \{2k\pi\}$$

$$\textcircled{I} \rightarrow \sqrt{r-1n-\omega} - 1 \neq 0$$

(6) الزاوية

$$\sqrt{r-1n-\omega} \neq 1$$

$$\rightarrow r-1n-\omega \neq 1$$

$$|m-\omega| \neq r \rightarrow n-\omega \neq \pm r \rightarrow n \neq r, v$$

$$D = \bigcap_{I \in \mathcal{I}} I \rightarrow [r, v) \cup (r, v) \cup (v, \infty)$$

$$= D \rightarrow [r, \infty) - \{r, v\}$$

$$\text{الف) } |2n+1| - |n+3| \neq 0$$

$$D = R - \{-r/2, r\} \textcircled{1}$$

$$\rightarrow (2n+1)^2 - (n+3)^2 \neq 0$$

$$4n^2 + 4n + 1 - n^2 - 6n - 9 \neq 0 \rightarrow 3n^2 - 2n - 8 \neq 0$$

$$(3n+4)(n-2) \neq 0 \rightarrow n \neq -4/3, 2$$

$$\text{ب) } |2n+1| - |n+3| > 0 \rightarrow (2n+1)^2 - (n+3)^2 > 0$$

$$4n^2 + 4n + 1 - n^2 - 6n - 9 > 0 \rightarrow (3n+4)(n-2) > 0$$

$$-4/3 \quad 2$$

$$+ \quad - \quad - \quad +$$

$$D = (-\infty, -4/3] \cup [2, \infty)$$

$$\log_{\omega}^{(2n-1)}$$

$$2n-1 > 0 \rightarrow 2n > 1 \rightarrow n > 1/2 \textcircled{9}$$

$$\log_{\omega}^{(2n-1)} > 0 \rightarrow 2n-1 > \omega$$

$$D = [r, +\infty)$$

$$2n > \omega \rightarrow n > \omega/2$$

Date:

Subject: تفاضل

الف) $\log_{10}(r \cos n + 1) \rightarrow r \cos n + 1$

$r \cos n > -1 \rightarrow \cos n > -1/r$



$D \rightarrow R - (r \cos n + 1/r, r \cos n + 1/r)$

ب) $\log_{10} \frac{n-1}{n+1} > 0 \rightarrow \frac{n-1}{n+1} > 1$

$\rightarrow \frac{n-1}{n+1} > 1$

$\rightarrow \frac{-r}{n+1} > 0$

$\frac{-r}{n+1} > 0 \rightarrow n+1 < 0 \rightarrow n < -1$

$D \rightarrow (-\infty, -1)$